

Notice of Allowability

Application No.

10/812,029

Examiner

Kelly A. Rogers

Applicant(s)

YOON ET AL.

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>3/30/04</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

Allowable Subject Matter

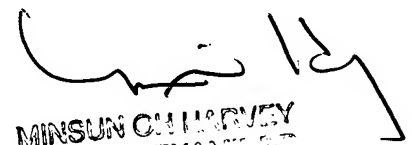
1. The following is an examiner's statement of reasons for allowance: after an extensive prior art search, it would not have been obvious to one ordinarily skilled in the art to combine the teachings of the closest related prior art of Hatakoshi et al. (6,400,742) and Nakayama (6,947,461), because Hatakoshi et al. discloses using materials comprising InGaN for the light confining layer and Nakayama discloses using materials comprising InGaAsP for the light confining layer and a different structure for the semiconductor laser diode.

Hatakoshi et al. (6,400,742) teaches a semiconductor laser diode comprising a first-conductivity type semiconductor substrate, a first-conductivity type clad layer formed over the substrate, an active layer formed over the first-conductivity type clad layer, a second-conductivity type clad layer formed over the active layer and provided with a ridge, and a light confining layer formed on the second-conductivity type clad layer around at least the ridge while including one or more higher order mode-absorption layers having an energy band gap lower than optical energy produced in the active layer [figure 1 and column 11, lines 11-29; column 12, lines 7-8]. Hatakoshi fails to teach the light confining layer having a refractive index lower than the second-conductivity type clad layer.

Nakayama (6,947,461) teaches a semiconductor laser diode comprising a first-conductivity type semiconductor substrate, a first-conductivity type clad layer formed over the substrate, an active layer formed over the first-conductivity type clad layer, a second-conductivity type clad layer formed over the active layer and provided with a

ridge [figure 1 and column 4, lines 25-35] and also discloses the light confining layers as being formed as a part of the active layer [figure 2 and column 5, lines 19-21] having a refractive index lower than the second-conductivity type clad layer [figure 4 and column 5, lines 44-47]. Nakayama fails to teach a light confining layer formed on the second-conductivity type clad layer around at least the ridge while including one or more higher order mode-absorption layers having an energy band gap lower than optical energy produced in the active layer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


MINSUN CHATTERVEY
PRIMARY EXAMINER